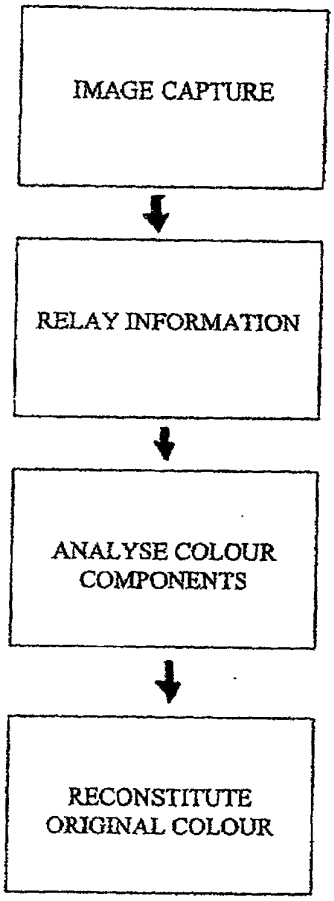
Figure 1



09/959,529 PCT/GB00/01694

FIGURE.2.

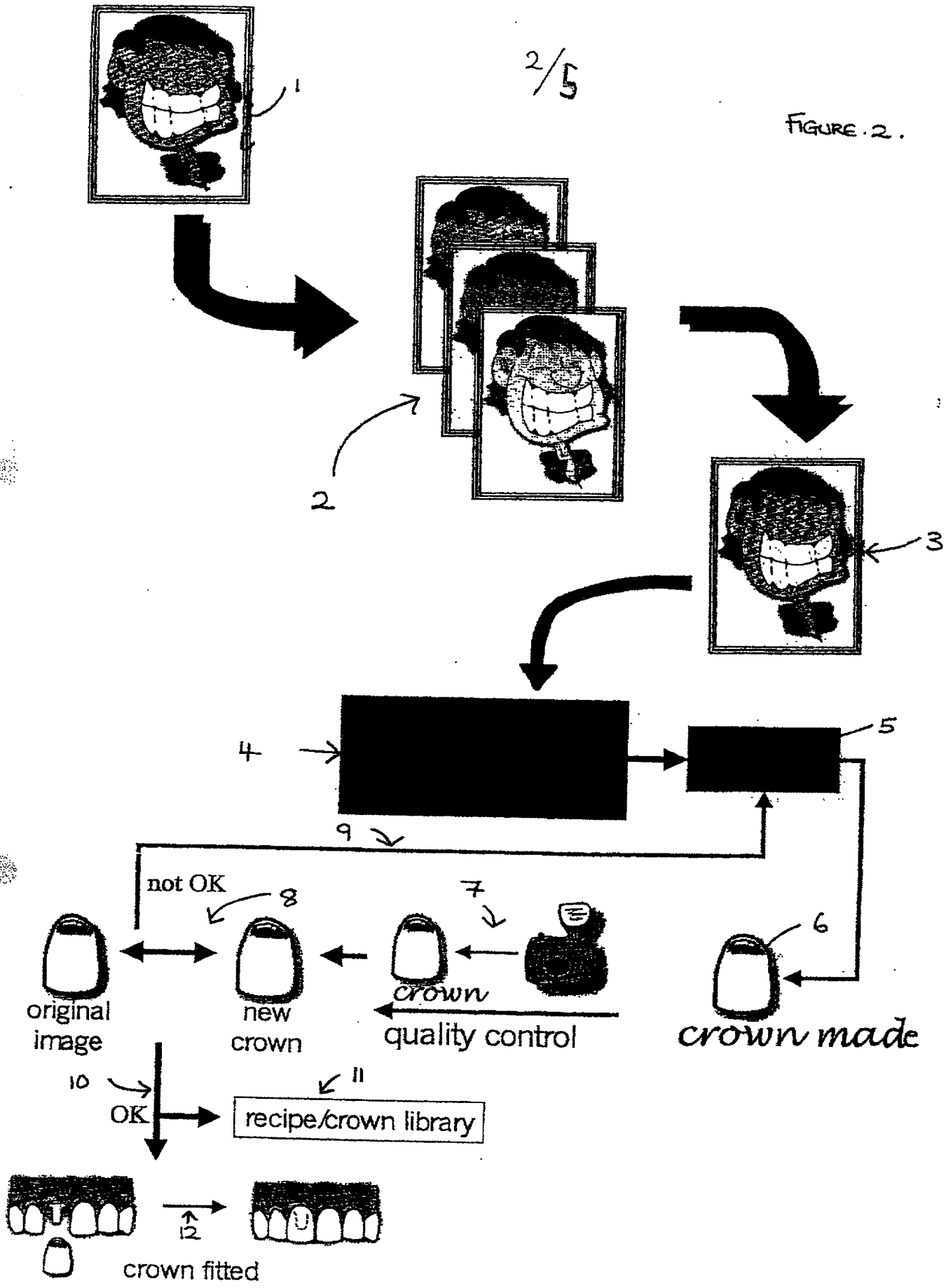
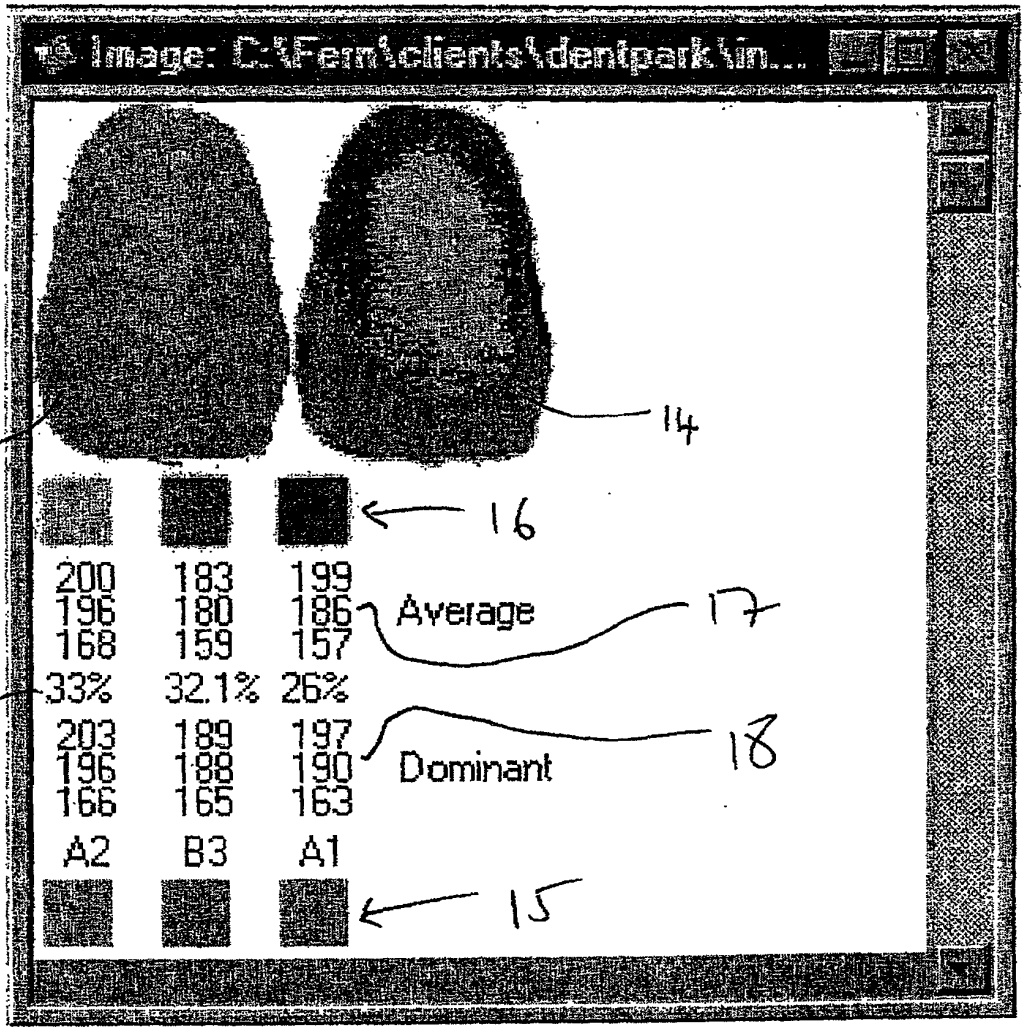

1
2
3
4
5
6
7
8
9
10
11
12
not OK
original image
new crown
crown
quality control
crown made
OK
recipe/crown library
crown fitted

FIGURE. 3.



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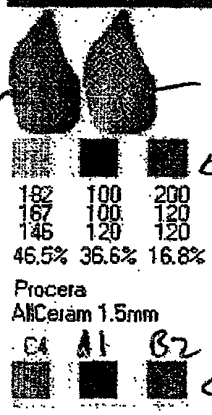

13

21

20

Fig. 4

Import and decrypt an image of a patient's mouth.

→ Draw around the tooth to be matched (selection).

→ Choose the material (ceramic) which will be used to create the prosthesis.

↓ Create another image (extraction) using the pixel values from the selection.

↓ Create an internal palette from the ceramic table and apply the palette to the extraction using octree quantisation.

↓ For each pixel in the extraction determine a range key value using the following algorithm:

the range key value consists of three elements:

1. red component value divided by 16
2. green component value divided by 16
3. blue component value divided by 16

(in the above the range key values are therefore:
0 for component values 0-15
1 for component values 16-31
2 for component values 32-47
3 for component values 48-63
and so on)

↓ Swap the range key value with a vivid colour value which is readily identifiable by the eye, such as yellow, cyan, magenta etc.

↓ Enter information about this pixel into an internal array of the following structure:

Original pixel colour	Red Component	Green Component	Blue Component	Range Key Value	Count of Pixels in this range

(For each pixel: If, in the array, the range key value does not yet exist, a new element is created, however, if the range key value already exists, the count is increased by one.)

↓ In a duplicate image (contour) of the extraction, replace the corresponding pixel with one of the vivid colour.

↓ Once all pixels in the extraction have been processed, build an external table in an SQL compliant database of the same structure as the internal array and populate it with the contents of the internal array.

↓ Using stored SQL procedures in the database determine the dominant (most frequently occurring) original pixel value in each range key and create an internal array (key array).

↓ For each element in the key array draw a vivid colour rectangle as a key underneath the contour image and identify it with the shade relevant to that key colour.

Fig. 5